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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,783	12/20/2001	Henricus Franciscus Johannus Jacobus Van Tongeren	NL 000766	3215
24737	7590	07/19/2005		
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
			EXAMINER MACCHIAROLO, PETER J	
			ART UNIT 2879	PAPER NUMBER

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/024,783

Applicant(s)

VAN TONGEREN ET AL.

Examiner

Peter J. Macchiarolo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,4-8,10,11,13,14,17 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10,11,13,14,17 and 21-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/20/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The reply filed on 04/21/2005 consists of changes to the claims consists of remarks related to the prior rejection of claims in the previous Office Action. The above have been entered and considered. However, pending claims 1, 2-8, 10, 11, 13, 14, 17, and 21-28 are not allowable as explained below.

### ***Election/Restriction***

2. Applicant's election with traverse of the method including ink jet printing an electrode in the reply filed on 04/21/2005 is acknowledged. The traversal is on the ground(s) that the claims are not distinct and independent. This is found persuasive and previously withdrawn claims 23-28 are hereby rejoined and fully examined for patentability.

3. The Examiner notes that although the cited passage from 37 CFR 1.145 uses the conjunctive "and," case law has been passed which states the conjunctive is read "or" as in MPEP 821.03.

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the selection layer (claims 23-28) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing

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sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1, 4, 5, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo et al (USPN 6326091; "Schoo") in view of Hayashi et al (USPN 6806643; "Hayashi").**

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7. Schoo discloses in figure 1, an EL device comprising a substrate (2) an organic EL layer (4) on the substrate an electrode (5) atop the EL layer the electrode comprising a metal (indium) having a melting point of 250°C or less.

8. Schoo is silent to the electrode being at least 500 nm thick.

9. However, Hayashi teaches in column 11 lines 16-36, that for proper resistivity and operation in an EL device, electrodes made from low work function metals (such as indium) should be about 500 nm thick.

10. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Schoo with the electrode thickness of Hayashi to ensure proper resistivity and operation.

11. The Examiner notes that the claim limitation “pattern-wise ink-jet printed” is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation.

Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation has been considered, but not patentably distinct over Schoo and Hayashi (see MPEP 2113).

12. Regarding claim 4, Schoo shows the electrode is an electrode for supplying electrons to the EL layer.

13. Regarding claim 5, Schoo discloses the metal used is indium, which has a work function of about 4.1 eV.

14. Regarding claim 8, Schoo and Hayashi are silent to 1.

15. The Examiner notes that the limitation, “a battery operated or hand-held electronic device provided with the EL device of claim” is an intended use type limitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case, the preamble has been considered, however is not patentable over Schoo and Hayashi since using a battery operated or hand held electronic device with the EL device of claim 1 is an obvious configuration.

16. Regarding claim 14, Schoo discloses the metal electrode is made from indium which has a work function of about 4.1 eV.

17. **Claims 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo in view of Hayashi in further view of Yudasaka et al (USPN 6541918; “Yudasaka”).**

18. Regarding claim 6, Schoo and Hayashi teach the limitations addressed in rejected claim 1 and will not be repeated here.

19. Schoo and Hayashi are silent to a relief pattern.

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20. However, Yudasaka teaches that relief patterns (step cutting insulating films) improve the accuracy and precision of a material on a surface when using an ink-jet manufacturing method, which in turn improves the overall quality of an EL device.

21. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the device of Schoo and Beigel with the relief patterns of Yudasaka to improve the overall quality of the device.

22. **Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo in view of Hayashi in further view of previously cited Sturm et al (USPN 6087196; "Strum").**

23. Regarding claims 7, Schoo and Hayashi are silent to the device being a passive matrix type including one or more EL layers sandwiched between row electrodes and column electrodes, and independently addressable EL elements being formed at crossings of row and column electrodes; and the row electrodes comprise a metal or metal alloy.

24. However, as is known in the art, Strum shows this configuration allows for a more robust device.

25. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Schoo and Hayashi with the above configuration to allow for a more robust element.

26. **Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo in view of Hayashi in further view of Yudasaka in further view of Sturm.**

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27. Regarding claim 17, Schoo, Hayashi, and Yudasaka are silent to the device being a passive matrix type including one or more EL layers sandwiched between row electrodes and column electrodes, and independently addressable EL elements being formed at crossings of row and column electrodes; and the row electrodes comprise a meal or metal alloy.

28. However, as is known in the art, Strum shows this configuration allows for a more robust device.

29. The motivations and reasons for combining are the same as for rejected claim 7.

30. **Claims 10, 13, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo in view of Beigel et al (USPN 6414543; "Beigel").**

31. Regarding claim 10, Schoo discloses in figure 1 and column 12 lines 44-51 a method for manufacturing an EL device including a metal electrode provided in accordance with a desired pattern comprising forming one or more layers of organic EL material (4) on a surface (2) and subsequently applying via a pipette a molten metal (indium) in accordance with the desired pattern such that upon cooling of the molten metal, the metal electrode is formed atop the one or more layers of organic EL material.

32. Schoo is silent to ink-jet printing the molten metal electrode.

33. However, Beigel teaches in column 4 lines 3-5 that it is known in the art to form metal electrodes via an ink-jet process.

34. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the EL device of



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Schoo by ink-jetting the metal electrode, since this allows for deposition over a large area with high resolution and reduces total manufacturing time.

35. Regarding claims 13, Schoo discloses the metal used for the electrode is indium, which has a melting point below 250°C.

36. Regarding claim 22, Schoo discloses the metal used for the electrode is indium, which has a melting point of about 156°C. Although this does not fall in the range of 60-150°C, it is noted that the inclusion of a metal with a melting point below 150°C is not shown to solve any problems or yield any unexpected results that are not within the scope of Schoo in view of Beigel's device. Accordingly, the inclusion of a metal or metal alloy having a melting point between 60 and 150°C is considered to be an obvious matter of design choice.

37. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Schoo and Beigel with a metal or metal alloy having a melting point between 60 and 150°C, since this is an obvious matter of design choice which one of ordinary skill in the art would arrive at for a variety of reasons, including material availability and specific thermal requirements of a particular ink-jet manufacturing machine.

38. **Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo in view of Beigel in further view of Yudasaka.**

39. Regarding claim 11, Schoo and Beigel are silent to a relief pattern formed on the surface.

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40. However, Yudasaka teaches that relief patterns (step cutting insulating films) improve the accuracy and precision of a material on a surface when using an ink-jet manufacturing method, which intern improves the overall quality of an EL device.

41. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the device of Schoo and Beigel with the relief patterns of Yudasaka to improve the overall quality of the device.

42. Regarding claim 21, Schoo and Beigel are silent to a relief pattern.

43. However, Yudasaka teaches that the relief patterns are formed by photolithography, indicating that they are made from a photoresist material.

44. The motivation and reasons for combining are the same as for claim 11.

**45. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoo in view of Beigel in further view of Applicant's admitted prior art.**

46. Regarding claim 23, Schoo and Beigel are silent to ink-jet printing a selection layer on the surface.

47. However, as Applicant admits in the paragraph spanning pages 13 and 14, such selection layers and inks used for manufacturing these layers are known.

48. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to ink-jet a selection layer onto the device of Schoo and Hayashi since the selection layer will increase the accuracy of the

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electrode's position and ink-jetting is a method that allows for very quick and accurate application over a large area.

49. Regarding claim 24, Schoo and Beigel are silent to a selection layer.

50. However, printing the selection layer on the surface using an other pattern that is complementary to the desired pattern is an obvious modification, since one skilled in the art will recognize the selection layer will not interfere with the electrode's overall resistance thereby simplifying electrical power calculations.

51. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the selection layer on the surface using an other pattern that is complementary to the desired pattern to simplify electrical power calculations.

52. Regarding claim 25, Schoo and Beigel are silent to a selection layer.

53. However, as Applicant admits in the first full paragraph of page 14, using a selection layer that comprises a photoresist layer is known in the art.

54. The motivation and reasons for combining are the same as for claim 23 above.

55. Furthermore, since the Examiner agrees with Applicant's argument filed 04/21/2005 that claims 23-25 are not distinct and independent, the Examiner asserts such methods would have been obvious to one skilled in the art.

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56. **Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Schoo in view of Hayashi in further view of Applicant's admitted prior art.**

57. Regarding claim 26, the limitations have been addressed at claim 1 above and will not be repeated here.

58. Schoo and Hayashi are silent to ink-jet printing a selection layer on the surface.

59. However, as Applicant admits in the paragraph spanning pages 13 and 14, such selection layers and inks used for manufacturing these layers are known.

60. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to ink-jet a selection layer onto the device of Schoo and Hayashi since the selection layer will increase the accuracy of the electrode's position and ink-jetting is a method that allows for very quick and accurate application over a large area.

61. Regarding claim 27, Schoo and Hayashi are silent to a selection layer.

62. However, printing the selection layer on the surface using an other pattern that is complementary to the desired pattern is an obvious modification, since one skilled in the art will recognize the selection layer will not interfere with the electrode's overall resistance thereby simplifying electrical power calculations.

63. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the selection layer on the surface using an other pattern that is complementary to the desired pattern to simplify electrical power calculations.

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64. Regarding claim 28, Schoo and Hayashi are silent to a selection layer.

65. However, as Applicant admits in the first full paragraph of page 14, using a selection layer that comprises a photoresist layer is known in the art.

66. The motivation and reasons for combining are the same as for claim 27 above.

### *Response to Arguments*

67. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

68. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

69. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

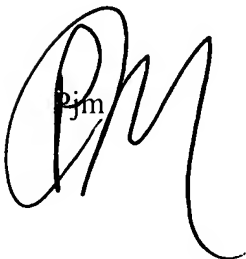

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70. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375.

The examiner can normally be reached on 8:30 - 5:00, M-F.

71. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

72. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'PJM' with a large, stylized 'M'.A handwritten signature in black ink, appearing to be 'Joseph Williams' in a cursive script.  
**JOSEPH WILLIAMS**  
**PRIMARY EXAMINER**